

black, basal joint of antennæ shorter than head ; connexivum with small black spots.

Long. $5\frac{1}{2}$ mm.

Hab. S. India ; Nandidrug (Dr. T. V. Campbell).

Phorticus varicolor, sp. n.

Head black ; pronotum ochraceous, with two large basal black spots which occupy nearly the whole of base and narrowly extend up the lateral margins ; scutellum and hemelytra dark brownish, the latter with a large basal angular and an apical ochraceous spot ; membrane black ; body beneath and legs ochraceous ; antennæ ochraceous, second joint blackish, basal joint scarcely passing apex of head ; first and second joints more or less incrassate ; membrane slightly passing abdominal apex ; abdomen beneath and legs ochraceous, sternum black ; abdominal incisures very distinct and slightly darker in hue.

• Long. $3\frac{1}{2}$ mm.

Hab. S. India ; Chikkaballapura (Dr. T. V. Campbell).

Genus LANCA.

Lanca, Dist. Ann. & Mag. Nat. Hist. (7) xviii. p. 369 (1906) ; Faun. Brit. Ind., Rhynch. v. p. 212, fig. 117 (1910).

Epidaus, Bergr. (nec Stål), Journ. Bomb. Nat. Hist. Soc. xxiv. p. 175 (1915).

Rostrum with the first joint shorter than the two remaining joints together *Epidaus*.
Rostrum with the first joint slightly longer than second joint. *Lanca*.

Bergroth (*supra*) writes that *Lanca* "is a plain synonym of *Epidaus*." I have figured the rostrum of each genus in my Faun. Brit. Ind.

XI.—On the Discovery of Two Species of Brachychæteumidæ, a Minor Group of Millipedes peculiar to the British Isles.
By RICHARD S. BAGNALL, F.L.S.

THE species of the genus *Brachychæteuma* are smallish millipedes ranging from 7 to 8 mm. in length, belonging to the Ascospermophora, white to dirty yellowish-white in

colour, being devoid of pigment. They have thirty body-segments, the lateral keels are weakly defined, and the ocelli few in number, usually indistinct and poorly pigmented. That they are clearly of Chordeumid (s. l.) affinities may be recognized on the field.

The members of the genus are to be found on the ground surface beneath shallow coverings of fallen leaves or under stones, sheltering in crevices or about the roots of vegetation. If found on the surface of the earth or perhaps on the under surface of the upturned stone, they usually remain quiet for some little time, and will then, or if but slightly disturbed, run away with a quick gliding movement. If less mildly disturbed, or touched for instance by the dead leaves one may be removing, they will quickly curl up, and, the conformation of the ground being suitable, roll away.

The best time to search for these animals would seem to be from the early spring (say, March) to May, and again in the late autumn.

Although we now know four species of *Brachychæteuma*, the genus is only of recent discovery. The first species and type of the genus and family, *Brachychæteuma bagnalli*, Verhoeff, was described in 1911*, and in greater detail the following year †, from a single male example collected by the writer in Gibside, a fine old piece of woodland in the county of Durham.

Until 1917, when Dr. Hilda and the Rev. S. Graham Brade-Birks diagnosed *Brachychæteuma bradeæ* (Brol. et Brade-Birks) ‡ from Lancashire (examples of both sexes having been secured), no further discoveries of the group had been made. They referred this species to a new genus—*Jacksoneuma*,—but upon the rediscovery of *Brachychæteuma bagnalli*, as detailed below, Verhoeff's description of the genus proved to be at fault in three important particulars, so that the genus *Jacksoneuma*, the erection of which was fully justified upon the data at that time available, had to be

* Verhoeff, K. W., "Ueber *Brachychæteuma*, n. g., und *Titanosoma jurassicum* aus England," Zool. Anz. xxxviii. pp. 455-458, Nov. 14, 1911.

† Verhoeff, K. W., "On the Occurrence of *Brachychæteuma*, *Titanosoma*, and *Polymicrodon* in England," Trans. Nat. Hist. Soc. Northd., Durham, and Newcastle, n. s. iv. pp. 143-167, pls. ix. & x., June 1912.

Bagnall, R. S., "Brief Records of *Chætechylene vesuviana*, Newp., and other Myriapods new to the British Fauna," The Zoologist, xvi. pp. 264-266, July 1912.

‡ Brade-Birks, Hilda K. and Rev. S. G., "Notes on Myriapoda.—VII. "A new Member of the Order AscospERMOPHORA (*Jacksoneuma bradeæ*, gen. et sp. nov.)," Journ. Zool. Res. ii. pp. 135-149, figs., Dec. 1917.

withdrawn, and the diagnosis of the genus *Brachychæteuma* and the family *Brachychæteumidæ* amended *.

The Discovery of Brachychæteuma melanops.

A few months after *Brachychæteuma bradææ* had been made known I happened to be in London, and between appointments with Admiralty officials I spent a short week-end with a friend in the Honorable Artillery Company, then encamped at Swanage. Thus it happened that on the evening of my arrival on April 6th, 1918, and when it was almost dusk, I stumbled upon another species of the genus, which occurred in numbers below Belle Vue, and, proving to be new, has been described by my friends under the name *Brachychæteuma melanops* †.

The cliffs at Belle Vue are very beautiful, standing out in somewhat marked contrast to those on either side. High up are plantations of evergreens, cedars, pines, laurustinas, and holly-oaks, and from here one can see the bay flanked to the left by a green-clothed prominence screening Peveril Point, and to the right by the undercliff stretching away to Durlston Head. The undercliffs are intersected by paths, the main one leading to Durlston Head, but here broken away and there perhaps blocked by a fall of rock from above; the undergrowth is chiefly of bracken and bramble, but towards the "Head" and below the plantations are little groves—conifers, poplars, and privet predominating,—with tracks leading perhaps to a little knoll or winding to the shore below.

I first discovered *B. melanops* in some plenty by scraping the surface covering of fallen leaves and needles in the lower plantations and groves where somewhat damp; later I found it under stones, but only in this sparsely wooded area, and not on the undercliffs. It was very plentiful—perhaps the most plentiful myriapod in early April,—but was found in less numbers six weeks later.

In October 1918 I found a few examples of a *Brachychæteuma* in the neighbourhood of Torquay and Babbacombe which proved to be the Swanage species, *B. melanops*, and on December 31st, 1918, and New Year's Day, 1919, it

* Brade-Birks, Hilda K. and Rev. G. S., "Notes on Myriapoda.—X. On the Family *Brachychæteumidæ*," *l. c.* iii. pp. 47–53, figs., Oct. 1918.

† Brade-Birks, Hilda K. and Rev. G. S., "Notes on Myriapoda.—XI. Description of a new Species of Diplopoda (*Brachychæteuma melanops*)," *l. c.* iii. pp. 55–61, figs., Oct. 1918.

occurred more frequently than in October, probably because the undergrowth was less dense and I had better opportunities for this class of collecting.

On this latter visit I spent some hours exploring Kent's Cavern with my friend Mr. J. Williams Vaughan, where *B. melanops* was one of the dominant myriapods; it occurred in the inmost depths of the caves and in all the galleries.

The Re-discovery of B. bagnalli.

Although I repeatedly searched for *B. bagnalli* in Gibside, I was never able to turn up further examples; but shortly after my return from Swanage and the discovery of *B. melanops* Mr. H. S. Wallace gave me a tube collected in a garden at Haddrick's Mill, Newcastle-on-Tyne, in the last week of April 1918, which contained six examples of *B. bagnalli*, 5 ♀♀ and 1 ♂, and a ♀ example of another recently described millipede, *Monacobates tenuis*, Bigler*. I accordingly accompanied my friend to Haddrick's Mill, where we took several examples of both sexes in and about the precincts of an old quarry; and subsequent visits proved that the species was well established and not uncommon.

Later I found a little colony under a log in a garden at Fenham, another residential part of Newcastle 2 miles or more distant from Haddrick's Mill, and only this month (May) Mr. Wallace found a female example at Hexham, where I ultimately turned up both sexes, and thus established its identity.

Ecological Notes.

In the cited discoveries of *B. melanops* and *B. bagnalli* I noticed a certain definite association of allied forms, and if zoologists find certain of the millipedes or centipedes named below there should be a chance of meeting with *Brachychaeteuma*.

For the uninitiated I should add that *Stigmatogaster subterraneus*, *Clinopodes linearis*, and *Chaetechylene vesuviana* are large Geophilids, a family of long slender centipedes, generally yellow or yellowish-brown and bearing a large number of legs. *Chordeumella scutellare* is a "square-backed"

* Bigler, Walter, "Die Diplopoden von Basel und Umgebung," Rev. Suisse Zool. Genève, xxi. pp. 675-793, pls. xvii.-xix., 1913.

Bagnall, R. S., "Records of some new British Diplopods and Pseudoscorpions, with a Preliminary Check List of the British 'Myriapoda,'" Journ. Zool. Res. iii. pp. 87-93, Oct. 1918.

millipede belonging to the Microchordenmidæ, and therefore more closely related to Brachychæteumidæ; it is smallish, has 28–30 body-segments, and the lateral keels are vestigial. *Macrosternodesmus palicola* and *Ophiodesmus albonanus* are our two smallest examples of the true square-backed millipedes of the family Polydesmidæ; they are both white; the former is the smaller and more slender, has 19 body-segments, and the lateral keels are irregular (notched or “toothed”) as in *Polydesmus* and *Brachydesmus*, whilst *Ophiodesmus* has 20 body-segments, with the lateral keels entire as in *Orthomorpha*. *Monacobates* is a Protoilid, very slender and small, like a short piece of animated wire.

Brachychæteuma melanops.

SWANAGE (Jurassic formation). *Stigmatogaster subterraneus*, common; *Macrosternodesmus palicola*, frequent; the recently discovered *Ophiodesmus albonanus*, both sexes, several; and *Monacobates tenuis*, rare.

TORQUAY DISTRICT (Middle Devonian). Whilst collecting in this district no species were found commonly or in company, but the following were noted while searching for *Brachychæteuma*:—*Stigmatogaster*, rare and apparently replaced by *Chaetechylene vesuviana*, a species so far only known from South Devon in our country; *Macrosternodesmus*, *Ophiodesmus*, and the *Monacobates*, rare.

Brachychæteuma bagnalli.

Gibside, Co. DURHAM (Carboniferous). *Stigmatogaster*, rare; *Macrosternodesmus* and *Monacobates*, in numbers. The original example of *B. bagnalli* was found here, but has not yet been rediscovered, and a solitary female example of *Chordeumella* is also recorded.

NEWCASTLE-ON-TYNE (Carboniferous). Haddrick's Mill: *Stigmatogaster*, not uncommon; *Macrosternodesmus* and *Monacobates*, frequent; *Chordeumella* sp., once only. Fenham: *Stigmatogaster*, *Macrosternodesmus*, and *Monacobates* were all found under the single log harbouring the Fenham colony of *B. bagnalli*.

HEXHAM (Millstone Grit). *Monacobates* occurred in very large numbers, together with a few of a similar creature—*Nopoiulus palmatus*,—but only two examples of *Macrosternodesmus* were found. A Geophilid, curiously resembling *Stigmatogaster*, proved to be *Clinopodes linearis*, a rare southern form that I had not previously met with.

An Atlantean Group?

Species of terrestrial arthropods peculiar to our country are rare, and particularly so if we consider groups which have had an equal or greater attention from Continental naturalists. Since the pioneer work of Newport, Leach, and (later) Meinert and Latzel, the Central and Southern European "Myriapods" have received close study, whilst until very recently the British forms have been entirely neglected. Yet here we have a natural group containing four species* widely distributed in this country, not extraordinarily small and without any near relatives on the Continent. If the group had its centre of distribution in Western Europe, then it would have spread east and south, and remnants would have surely been found on the Continent of to-day. Similarly, were the group of Lusitanian origin it would be more richly represented in the Mediterranean subregion than with us. But not only is *Brachychæteuma* or allied genus unknown elsewhere, but its distribution with us (north, south, midlands, east, and west of England) does not suggest a Lusitanian group, and we are thus forced to suggest that *Brachychæteuma* is of Atlantean origin, and that in the very dim past it formed a modest member of the fauna of the old continent of Atlantis.

XII.—*New Species and Genera of Nymphalidæ, Syntomidæ, and Sphingidæ in the Joicey Collection.* By W. J. KAYE, F.E.S.

Family Nymphalidæ.

The confusion over certain species of *Callithea* is considerable, and as a foreword to the description of the new forms that follow it is as well to state the position adopted. *Callithea davisii* was described by Butler (Ann. & Mag. Nat. Hist. ser. 4, vol. xx. p. 123, 1877), as Hewitson had confused two species under one name—*markii*. Fig. 2 of Hewitson (Ex. Butt., *Callithea*, pl. i.)—the first under the species—becomes

* For description of the fourth species see Brade-Birks, Hilda K. and Rev. S. G., "Notes on Myriapods.—XII. A Preliminary List for Derbyshire, with a Description of *Brachychæteuma quartum*, sp. n., and *Chordeumella scutellare bagnalli*, var. n.," Ann. & Mag. Nat. Hist. ser. 9, xi. pp. 319-336, figs., Oct. 1918.